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ABSTRACT

This document offers teaching tips to be used if, on administration of the Motivated Strategies for Learning Questionnaire (MSLQ), a class were to present a profile of scores that would suggest the need for help in one or more of the motivation or learning strategies areas assessed by the MSLQ. Some tips are supported by research; others are based on teacher experiences. The document format follows the format of the MSLQ, which contains 31 motivation items, 31 learning strategies items, and 19 resource management items. Thus Part A: Motivation Scales of the MSLQ covers intrinsic goal orientation, extrinsic goal orientation, task value, control beliefs, self-efficacy for learning and performance, and test anxiety. Part B: Cognitive Scales treats rehearsal strategies, elaboration strategies, organization strategies, critical thinking, metacognitive self-regulation, time and study management, effort management, peer learning, and help-seeking behavior. Each instance offers a brief description of the concept, three or four tips for addressing a problem with that concept, and explanation organized around "how" and "why." The tips total 89. Appended are 13 references. (JB)

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Teaching Tips for Users of the Motivated Strategies for Learning Questionnaire

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Teaching Tips for Users of the Motivated Strategies for Learning Questionnaire (MSLQ)

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May 5, 1989

TEACHING TIPS FOR USERS OF THE

MOTIVATED STRATEGIES FOR LEARNING QUESTIONNAIRE (MSLQ)

Introduction

Many college students achieve less than they and their teachers expect. In some cases poor performance is due to motivational problems; in other cases it is due to poor skills and strategies for learning; in still others it is due to a combination of both (Pintrich, 1989). The Motivated Strategies for Learning Questionnaire (MSLQ) was developed to assess college students' motivational orientations and their use of different learning strategies. (See Pintrich, Smith, Garcia, & McKeachie, 1991, for a description of the instrument.) The MSLQ has been used as a research instrument both to assess individual differences affecting achievement in different college courses and to assess changes in motivation and learning strategies produced by differing teaching methods. The MSLQ has also been used by students and teachers as a tool for diagnosing potential needs for remediation.

Diagnosis is of little value without methods of remediation. Thus, a task force of experienced teachers and faculty development experts studied the MSLQ in depth. Drawing upon their experiences, they suggested possible techniques teachers might use if one of their classes presented a profile of MSLQ scores suggesting the need for help in one or more of the areas assessed by the MSLQ. Working together for a week at the June 1988 Smoky Mountain Seminar on College Teaching and Learning at Western Carolina University and continuing their work by correspondence, the group arrived at the set of suggestions that follow.

Cautions and Caveats

The "Tips" are intended as cues for teacher thinking, to be tried, modified, or used as the individual teacher desires. Some of the tips are supported by research, others are based on our experiences as teachers.

The MSLQ

The Motivated Strategies for Learning Questionnaire (MSLQ) is a self-report instrument designed to assess college students' motivational orientations and their use of different learning strategies. The MSLQ is based on a general cognitive view of motivation and learning strategies. McKeachie, Pintrich, Lin, & Smith (1986) presents the general theoretical framework that underlies the MSLQ.

There are essentially two sections to the MSLQ, a motivation section and a learning strategies section. The motivation section consists of 31 items that assess students' value for a course, their beliefs about their skill to succeed in the course, and their anxiety about tests in the course. The learning strategy section includes 31 items regarding students' use of different cognitive and metacognitive strategies. In addition, the learning strategies section includes 19 items concerning student management of different resources. The different scales on the MSLQ can be used together or singly. The scales are designed to be

modular and can be selected to fit the needs of the researcher or instructor. The instrument is designed to be given in class and takes approximately 20 to 30 minutes to administer. Students rate themselves on a seven-point Likert-type scale from "not at all true of me" to "very true of me."

PART A: MOTIVATION SCALES OF THE MSLQ

The motivation scales of the MSLQ are based on a general social cognitive theory of motivation that includes two general components: values and expectancies. A person's motivation to choose to work at a particular activity depends on the value of the goal that will be attained if the activity is successfully completed and the expected probability that the activity can be successfully completed to reach the goal. Since there are a variety of possible goals and activities at any one time, the activity chosen is one that has positive value (high importance, utility, or interest) as well as a reasonable expectancy for success as compared with other alternatives.

1. Motivation: Value Components

Value components concern students reasons for engaging in a task. Essentially they address the question "Why am I doing this task?" There are three value components: intrinsic goal orientation, extrinsic goal orientation, and task value.

1A. Intrinsic Goal Orientation

Intrinsic goal orientation involves an approach to learning that focuses on mastery, learning, and challenge.

Tip 1: Identify the students' goals for learning.

How:

1. Ask students to write their own goals for the course.
2. Have the students read the goals listed in the course syllabus, then ask them to rank the goals according to the importance of each goal to them personally.
3. Next, ask the students to estimate how difficult each goal will be to achieve (e.g., using a scale from "Very difficult" to "Easy"). For a more extended discussion of this tip, see Cross & Angelo (1988) Classroom Assessment Technique 15.

Why? The instructor can identify how closely the learning goals of the students correspond to the learning goals for the course and plan strategies for developing greater motivation for learning.

Tip 2: Encourage divergent thinking and curiosity by beginning lessons with apparently contradictory information.

How: For example, after presenting apparently contradictory information, the instructor can ask students to write a paragraph on the pros and cons of the issue. Suggest supplemental readings that address the pros and cons of contradictory information and/or have students provide examples of how different cultures have different beliefs. Berlyne (1960) demonstrated the role of conflict in stimulating curiosity.

Why? This strategy will help arouse student curiosity and will encourage students to compare and contrast new information with their existing knowledge base. Divergent thinking about the topic will also be encouraged.

Tip 3: Avoid grading competitively "on the curve."

Why? Competitive grading increases anxiety and often leads to focus on tests and grades at the expense of learning. Assigning grades in terms of criteria of competence helps more students gain a sense of efficacy rather than ensuring that half are below the median.

Tip 4: Examine carefully unorthodox responses from students. Be flexible in grading when unusual, but exceptional, work is generated.

Why? An intrinsic goal for learning will often lead some students to produce high quality work that goes outside the instructor's usual expectations for the class. Encourage such individual explorations going beyond course requirements, even if the student has not conformed to the letter of an assignment

1B. Extrinsic Goal Orientation

Extrinsic goal orientation in most courses involves the student's motivation for grades or approval from others. These extrinsic goals may often be obtained by focusing solely on material that will be tested or graded to the exclusion of other educational goals; worse yet they may be attained by cheating. Thus, a teacher normally attempts to convert extrinsic motivation into intrinsic motivation for learning. Nonetheless, grades are important to most students; thus we need to use them as constructively as possible.

Tip 5: Be sure your grading is based on achievement of your course goals, not simply on low level recognition or recall of factual information.

Why? If tests require only rote memorization, many students will not try to integrate or think about what they are learning.

Tip 6: Be clear and explicit in stating grading criteria.

Why? Since grades are important to most students, they need to know how the grades are related to course goals and the basis upon which their performance will be judged. By making grading criteria clear ahead of time, you will enable students to meet your expectations better, as well as giving them a greater sense of control over their course grades.

Tip 7: Provide students with an opportunity to "contract" for their grades.

How: Distribute two copies of a "contract" to the students. Include the objectives for the course, evaluation criteria, and standards for each grade. Have the students sign both copies of their contracts; the students keep one copy and turn in the second copy. Be sure the contract is for quality of work, not just quantity.

Why? Students will assume greater responsibility for pursuing tasks if they have helped to determine how they must perform.

1C. Task Value

Intrinsic and extrinsic goal orientation are general orientations or goals for academic work. The task value scale represents beliefs that students have about the specific course material. Students can be more or less interested in the course content, believe that it is more or less important to know, and vary in their beliefs about how useful it will be.

Tip 8: Use personal contacts with students.

How: Fifteen minute office conferences can give you a chance to find out something about who your students are, what their interests are, what experiences they have had, and what their goals are in college and in life.

Why? If you know students, you can better provide opportunities for individualization. You can use this time to help students recognize the ways in which course content relate to their own interests.

Tip 9: Learn the students' names and use them.

How: Maintaining seating charts and 3" X 5" information cards can facilitate this effort.

Why? Human beings are motivated by interactions with other people. Learning and using students' names also greatly facilitates the development of positive interactions between students.

Tip 10: Assess student interests and design activities around those interests.

How: One simple way to discover interests at the beginning of the term is to ask students to peruse the Table of Contents of the textbook and to then indicate the following on a 5" x 8" index card: (a) three topics in which they are most interested; (b) three topics in which they are least interested; (c) three course-related topics in which they are interested that are not contained in the textbook. During conversations with individual students before or after a class period, faculty members can ask students to describe the degree to which they are finding particular sections of course material interesting. Students might be further asked to discuss why they have found some topics very interesting and why they have found other topics to be less interesting.

Why? When instructional activities explicitly address student interests, classroom motivation will be increased.

Tip 11: Describe explicitly the value of the new things students will be learning. (If you assessed students goals earlier, you will have some sense of what they value.)

Why? When this is done, students can contrast their own ideas about the value of selected topics with the ideas of their instructor. As students relate course topics to their present and future, the relevance of subject matter for work and life will be identified.

Tip 12: Use current events of interest to the students.

How: Require students to search through a daily newspaper or a weekly news magazine and to identify one example of a current event that is related to the topic presently being addressed in the course, and then ask each student to report the relationship between the event and the course content. To avoid the negative aspects of a "requirement," an alternative might be to establish a bulletin board where students can bring in news articles, cartoons, or other course related material to be posted.

Why? Linking subject matter to other intrinsic interests increases the likelihood of developing intrinsic interest.

Tip 13: Use varied teaching methods.

Use invited "guest speakers," multiple readings, panels, and handouts that express viewpoints that are different from those presented by the instructor, the students, and the basic textbook.

Why? Human beings are stimulated and motivated by new experiences in the course.

Tip 14: Incorporate reading assignments from other disciplines into your classes.

Why? One way to help students see the value and importance of a course's subject matter is to relate this subject matter to interesting topics and concerns found in other courses or disciplines. The more often interdisciplinary readings are incorporated into course assignments, the greater the likelihood students will perceive the connections and the utility value of the course material.

Tip 15: Give students choices in the ways that they are evaluated.

How: Devise a grading system in which the students have some choices in the ways that they are evaluated; e.g., choices of topics for papers, a field project or a research paper, interviews or readings.

Why? Students learn in different ways. By allowing students to develop course knowledge in ways that directly relate to their own interests, the likelihood is increased that this knowledge will be integrated into their own mental framework in a meaningful way.

2. Motivation: Expectancy Components

Expectancy components involve students' beliefs about the probability of successfully achieving their goals. One factor influencing students' expectancies is the student's belief in his or her own control over success or failure.

2A. Control Beliefs

Control beliefs refer to students' belief that outcomes in the course are contingent on their own effort.

Tip 16: Discuss with students the degree to which they feel in control of their own learning.

How: Have students review their MSLQ scores and discuss the scales with them. The MSLQ scales deal with the major factors influencing academic success. Each of the scales describes variables which can be learned or developed. Thus, the student has the opportunity to change or develop those areas in which she or he is weak. They are not doomed by uncontrollable, unchangeable inadequacies.

Why? Students vary in the degree to which they believe they control their successes and their failures.

Tip 17: Discuss effective study skills.

How: Provide a micro-session during class time when effective study skills and learning strategies could be discussed. Invite a specialist in study skills and learning to make the presentation.

Why? Many students have never been taught to adapt their study methods to the differing goals and methods of different instructors.

Tip 18: Explain your expectations for student performance.

How: Have a special meeting early in the course. Explain faculty expectations and your expectations for student performance. Also, discuss resources and services that are available for students (tutoring, advising, counseling services).

Why? Students will be clearer about what they need to do.

Tip 19: Have students select their own topics for papers, projects, and presentations.

Why? Personal control is a major factor in human motivation. When students have the opportunity to choose topics in line with their individual goals, they are likely to work harder and to be more motivated.

Tip 20: Provide students with samples or models of previously graded students' work.

How: Explain why one paper or project received a high grade while a second paper or project received a low grade.

Why? Students will better understand what is valued if they see the work of previous students.

2B. Self-Efficacy for Learning and Performance

Self-efficacy refers to students' beliefs that they have the skills and capabilities to accomplish specific goals.

Tip 21: Have the students evaluate their current levels of learning from different points of view.

How: Have the students make a presentation, complete a writing assignment, or videotape their own performances. Next, have the students describe their effectiveness or difficulty in completing the assignment from two different points of view: their own and that of a fellow student. For a more detailed discussion, refer to Cross and Angelo (1988), Technique 18, Dual-Viewpoint Skills Portraits.

Why? Being able to evaluate one's own work is an important skill for life-long learning. To develop the ability to monitor one's own learning, one needs to become conscious of it.

Tip 22: Assign writing assignments so that students hand in drafts, get feedback, revise drafts, and hand in final papers to be graded.

Why? This process will help students gain a sense of progress and increased sense of efficacy.

Tip 23: Assure students that if they encounter difficulty with course material, there are many sources of out-of-class assistance available.

How: Provide a "help" list, e.g., visiting the faculty member during office hours, peer tutoring, alternative and simpler text books, college services (such as study-skills centers, computer tutorials).

Why? A list of "help" sources can reduce anxiety and increase efficacy. Students, like all people, are likely to ignore or deny problems or difficulties if they believe that no solution or help exists.

3. Motivation: Affective Components

3A. Test Anxiety

Test anxiety refers to the feelings of discomfort and worry many students experience before or during a test or examination when they fear that they will do badly. The emotional distress has little effect on the performance, but worry "steals" cognitive capacity needed for good performance.

Tip 24: Use the hopes/fears exercise.

How: Ask students what they hope to get out of class (grades, assignments, particular concepts, etc.) and what they fear might happen in class (low grade, presentations, excessive homework, etc.). Have them do this individually on a sheet of paper. Put students in groups, and have the students share their lists. Have each group make a master list, then have each group put its master list on the blackboard. Discuss the master lists.

Why? This exercise gives the teacher an opportunity to clarify the course, put to rest unrealistic fears, illustrate that other students have similar fears, and deal with realistic fears.

Tip 25: Teach test-taking strategies to students to reduce their test anxiety.

How: Review test-taking tips with the class before the first exam. Such tips include:

* write comments about the questions
* use "thought stopping" if you are dwelling on thoughts of failure
* pay attention to the instructor
* read instructions slowly and carefully, do the parts of the test you know first
* if you finish a section early, check your answers again, don't worry if you can't do some
* if you can't answer a problem and it is taking too much time, move on to the next one
* don't rush, but work at a moderate rate
* keep track of where you are on the page by keeping one hand on the spot

Why? McKeachie, et al. (1986) discovered that test anxious students did better on tests when they were taught certain tips.

Tip 26: If multiple choice tests are used, give students a chance to write comments about questions.

Why? Research shows that this helps anxious students do better on later questions, presumably by reducing worry about doubtful answers (McKeachie, Pollie & Speesman, 1955).

Tip 27: Use non-competitive grading.

Why? Competition increases anxiety, especially for students high in test anxiety, resulting in poorer performance.

PART B: COGNITIVE SCALES

1. Cognitive and Metacognitive Strategies

1A. Rehearsal Strategies

Rehearsal strategies include repetition and memorization of course material. They are generally less effective for deeper learning and for retention than elaboration strategies, although they can be useful in learning vocabulary or specific facts or procedures.

Tip 28: Develop game show exercises based on common television show formats (i.e., Jeopardy, Wheel of Fortune) for students to review terminology and facts.

Why? This is a technique for helping students identify what content in the course needs to be memorized. Such exercises assist the student in rehearsing the content within a format which is fun.

Tip 29: Teach students mnemonic devices that you have found helpful, and encourage the students to make up their own devices.

How: Encourage your students to construct their own mnemonic devices whenever one will be helpful in committing material to memory. The process of creating a mnemonic device requires that the student be actively involved. Although it takes time to construct a good mnemonic device, students are less likely to forget the material they are trying to learn.

Why? Mnemonic devices are elaborated strategies used in memorization. They aid in learning and retrieval by giving additional meaning to the material and by providing additional cues for its retrieval. Remembering the names of the lines on a music staff in sequence (E, G, B, D, F) is made easier by either "Every Good Boy Does Fine" or "Every Good Boy Deserves Food." Using the sentence Men Very Easily Make Jugs Serve Useful Needed Purposes helps remember the order of the planets in our solar system: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, and Pluto).

Tip 30: Have students list the important new terms in the course.

How: Have the students develop the list on one continuous sheet of paper. Have them discuss and share their lists.

Why? Vocabulary is an important tool for learning.

Tip 31: Have students list information they believe students should know if they are to be successful on a forthcoming examination in the course.

How: Ask the students to share their information during group sessions. Develop a set of topics and distribute the list to the students to review either in groups or alone, if gaps in student knowledge are apparent. For additional ideas about how this can be used, refer to Cross and Angelo (1988), Technique 1: Focused Listing.

Why? The students are actively involved. Their statements can also serve as feedback to the instructor, who can determine how much information the students can recall.

1B. Elaboration Strategies

Elaboration strategies involve methods by which students process new information in order to connect and integrate it with their prior knowledge. Examples include relating new learning to one's own experiences to concepts previously learned, putting ideas into one's own words, explaining, paraphrasing, questioning, thinking about the meaning, etc.

Tip 32: Ask students to respond to questions in class which reflect the depth of processing presented in class objectives and tested in exams.

Why? Students require practice in responding to comprehension, application, and analysis types of questions. Practice in class allows them to determine the depth of processing the instructor requires and to check their understanding of the material.

Tip 33: Specifically explain to the students that they will be tested for an understanding of relationships and concepts and not simply on knowledge of facts.

Why? Students will study material at a level to which they expect test questions to be directed. If the test requires only rote knowledge, they will use study methods that are ineffective for longer retention.

Tip 34: Have students summarize your lecture.

How: Cross and Angelo (1988) have presented a structure for summarizing. Students first complete a matrix where the left column is labeled "Question" and the right column is labeled "Response." The students "respond" to the following questions (WDWWHWWW): Why? Do What? To What or Whom? How? When? Where? Why? After completing the matrix, the students must use the data in the response column to summarize in sentence form. For additional information, refer to Cross and Angelo (1988), Technique 10, One-Sentence Summaries (WDWWHWWW).

Why? Summarizing is an effective elaboration strategy for improving learning and memory.

Tip 35: Suggest that students study a reading assignment in pairs and take turns summarizing and explaining paragraphs (or larger units) to one another.

Why? This procedure makes both of the participants more active and involved readers. Numerous studies support (what many teachers already know) that a good way to learn something is to teach it. The "teacher," as well as the person being "taught," gets to find out whether his or her interpretation of the material was shared by someone else. Discrepancies between the two participants' interpretations can be discussed. Unresolved questions can be brought to the professor's attention for clarification and resolution. This procedure gives both participants immediate feedback on the probable correctness of their understanding of the material.

Tip 36: Provide 3-5 minutes at the end of each class for students to review and elaborate their notes and to ask clarifying questions of one another and/or the instructor.

Why? Students who review their notes immediately after each lecture class and elaborate them learn and remember more than those who don't.

Tip 37: Encourage your students to ask themselves and to answer each of the following four questions within two hours after the conclusion of each class:

a. What was the main point of the lesson?
b. What in the lesson did I find most interesting?
c. What is one probable test question that will come out of the lesson?
d. What one question do I most want to ask of my instructor?

Why? Knowing that they are expected to answer the questions will encourage your students to be more attentive listeners during the class. By reviewing the material within two hours of the lesson, your students will minimize the effect of rapid forgetting. Moreover, the process of answering the questions will help the students to view the separate elements of a lesson in a more unified manner which will also contribute to increased retention. The process also forces the students to be active, decision-making learners rather than uninvolved, passive ones. Finally, it encourages them to seek clarification and additional information from you at the most opportune time for improving learning.

Tip 38: Include essay questions on your tests and exams.

Why? Students study differently for essay test items than for objective test items. The presence of essay items on your tests and exams will encourage your students to get an overall view of the material covered and to make connections among the many specific facts.

1C. Organization Strategies

Organization strategies refer to strategies for relating facts and concepts to one another.

Tip 39: Provide a written assignment that requires the students to use organizational skills.

How: Have the students outline a chapter in the textbook or the content in a handout. Review their outlines to see if they can identify the important elements in the content while they are paraphrasing. Provide feedback to the students about their critical reading skills. For a variation of this tip, refer to Cross and Angelo (1988), Technique 7, Do & Say (Function & Content) Analysis.

Why? Organization is important if material is to be understood and remembered.

Tip 40: Be explicit in explaining to the students how the material you present builds to broader concepts and theories.

How: Share with students (through handouts, blackboard outlines, and transparencies) your analysis of the concepts and what you see as the main point. Present them with an organization on which to "hook" the facts, where they serve as building blocks rather than as the key focus.

Why? Many students have become masters of rehearsal strategies, since these strategies have served them well in earlier schooling. Their tendency is to deal with material as isolated facts.

Tip 41: Tell students to skim a chapter to see how it is organized before they begin reading in depth.

How: You might provide an in-class experience during two consecutive class sessions. During the first session, provide an organized reading and then give a quiz after everyone has read the assignment. During the second session, direct the students to re-read the assignment, but tell them to use the SQ3R (Survey, Question, Read, Review, Recite) technique (see Cross and

Angelo, 1988, for details). Again, give a quiz. Score both quizzes and return them to the students so they can see the differences in scores.

Why? Since ideas are usually easier to understand in context, skimming a chapter before reading it more carefully provides the reader with a framework that can enhance understanding. This is the first step in the SQ3R method of reading textbooks. Ideally, as a result of the skimming, students will ask themselves questions about the material they are about to read and then attempt to answer those questions as they read.

The major problem with the SQ3R method is that students often refuse to try it because they perceive it as too time consuming. Getting your students to skim the chapter is beneficial to them whether or not they ever do any of the other steps of the SQ3R method.

Tip 42: Provide students with models of how to select the most important points in a lecture or reading.

How: Videotape the first fifteen minutes of your lecture. Replay the video tape. Demonstrate selection by writing key points on the blackboard during the replaying of the tape.

Why? This provides the students with procedural knowledge that will aid them in getting actively involved in the selection process.

Tip 43: Have students discuss why they felt something was important enough to include in their notes.

Why? This helps students become more conscious of their selection strategies.

Tip 44: Have the students recall important variables covered in the course, and then ask the students to categorize the variables.

Why? The students are actively using their thought processes while the instructor is assessing the students' ability to recall and organize important information that was covered in the course.

Tip 45: Review outlining skills.

How: Demonstrate alternative ways of outlining and note taking; e.g., graphic representations using arrows, matrices, networks, or trees linking major and minor concepts.

Why? The outline is a basic organizational tool.

Tip 46: Engage students in developing concept maps.

How: Cross and Angelo suggest that the instructor present a concept as a stimulus for brainstorming, the students writing down terms and short statements correlated to the concept. The students then place the concept in the center of a sheet of paper, and they begin to draw lines from the concept to the "brainstorming" terms and statements, which creates a facsimile to a wheel with spokes. Next, they add subordinate levels of association, and they use lines to connect the various concepts, writing those types of associations on the lines. For additional information, refer to Cross and Angelo (1988), Technique 11, Concept Maps.

Why? Concept maps help students to see how their ideas and concepts are related.

Tip 47: Provide the students with a conceptual framework from which to work throughout the semester. Repeat the theme and major concepts throughout the semester.

Why? Some students have difficulty identifying key concepts in a course. A framework helps student comprehension and memory.

1D. Critical Thinking

Thinking includes application, problem solving, analysis, inference, synthesis and evaluation.

Tip 48: Review test items for the proportion of rote memory versus thinking that is required.

How: Review your test items to determine which require thinking, e.g., identifying the reason, making inferences, or supporting conclusions by evidence; or using information to solve a problem. Tell the students the types of cognitive processes sought in the tests, in order that they know what is required in their studying. Develop and share sample test questions which illustrate the understanding expected from the students.

Why? If grades are based primarily on memory of factual knowledge, students will spend their study time memorizing rather than thinking.

Tip 49: Give writing assignments that require thinking.

How: Divide the class into two groups, and assign each group a different problem situation. Have one group of students role play executives, managers, or political analysts who scrutinize the memos written by the other group of students. The instructor should identify the role of each student, the audience for the memo, deadline for completion of the memo, and length of the memo (usually two or three pages). The instructor should probably write a memo for each assignment and then compare elements included in his/her memo with those of the students. After reading the students' memos, the instructor can provide feedback. For additional information, refer to Cross and Angelo (1988), Technique 9, Analytic Memos.

Why? Writing not only stimulates thinking, but also externalizes thinking so that students can evaluate it.

Tip 50: Direct the students to write a critical analysis of assigned readings.

How: Provide the students two articles with divergent views about the same topic. Direct the students to write cogent notes while reading the articles, and ask them to compare and contrast the two authors' views. Compare the students' notes to a set of notes you have developed, and provide feedback to the students if the students misunderstand the content of the articles or if they reflect a weakness in locating important information. For additional information, refer to Cross and Angelo (1988), Technique 8, Focused Dialectical Notes.

Why? Students need to practice analytic skills.

Tip 51: Encourage students to be skeptical readers and listeners.

How: Ask the students to provide their reasons for supporting or rejecting information in an article: "What is the evidence?" Have them analyze assumptions, note biases, and differentiate facts from opinions.

Why? Questioning is not only a useful strategy for learning but also important in evaluating truth or value.

Tip 52: Illustrate the multiple dimensions of an issue by having students demonstrate knowledge of opposing viewpoints.

How: Design a debate format for a given issue in the class, however, have students develop both sides of the issue so as to give them the opportunity to understand and critique each perspective. Students can then "switch sides" and be ready to defend either position. (See Perkins, D.N., 1986).

Why? Critical thinking demands that students be able to dissect the dimensions of an issue, review the evidence on both sides, and justify their position.

Tip 53: Model the way you would analyze or critique an essay or research report.

How: Review studies appropriate to the discipline which result in opposing conclusions. Have students describe the basis of these conclusions and demonstrate the steps taken to reach the conflicting viewpoints, e.g., background cited, data collected, generalizations made, original hypotheses, etc. (Kneedler, P., 1985).

Why? In science, analysis of data to determine whether it adequately supports study conclusions allows students to see that alternate interpretations are possible. By pinpointing the flaws in conclusions, students learn that everything that is written is not truth and that studies allow for exploration of plausible explanations. In the humanities, analysis of a literary or artistic product helps students develop awareness of characteristics important in evaluation.

Tip 54: Have the students write a prospectus for a paper or project.

How: Require the students to complete a detailed plan for a class paper or project. Include such elements as the topic, purpose of the topic, identification of the audience, questions to be answered, general organization of the paper or project, and required resources. For additional information, refer to Cross and Angelo (1988), Technique 12, The Paper or Project Prospectus.

Why? A prospectus provides practice in synthesis.

Tip 55: Have the students develop portfolios.

How: Direct the students to maintain samples of their work in their portfolios, and ask them to describe in their own words the relationship between the samples and the goals of the course. For additional information, refer to Cross and Angelo (1988), Technique 13, Annotated Portfolios of Creative Work.

Why? Portfolios require students to be actively and creatively involved in utilizing the information they have gained from the course's content. Cross and Angelo (1988) believe that portfolios are particularly suited to courses involving visual arts, painting, architecture, poetry, journalism, creative writing, clinical fields, drawing, music, drama, dance, fashion, and broadcasting.

Tip 56: Ask the students to create dialogues involving personalities one might find in the settings for the content of the lesson.

How: Provide the historical time, a setting, and some personalities for the students to use in developing a dialogue that would incorporate content from the lesson (e.g., John F. Kennedy and the members of his Cabinet discussing the various outcomes they might have projected prior to supporting the Bay of Pigs attack). Compare and contrast the dialogue's projected outcomes with the real outcome. For additional information, refer to Cross and Angelo (1988), Technique 14, Invented Dialogues.

Why? Active involvement of the students establishes a challenge to student creativity.

Tip 57: Use brainstorming sessions to stimulate creative thinking.

How: Design a program to teach students the fundamentals of brainstorming (i.e., list all ideas, piggyback on others' ideas and, most importantly, reserve judgment on one's own or others' ideas). Use this program in class to generate alternative solutions to problems faced by authors, scientists, musicians, etc.

Why? Students often seek out teacher-pleasing responses to problems rather than generating alternative possibilities. Modeling the appropriateness of seeking a variety of solutions sets a tone for creative and original thinking as an acceptable process.

Tip 58: Use ungraded assignments to allow students to produce work without worrying about grades.

How: An example of this type of assignment might be: "In a group, collaborate on an essay regarding how the United States would be now if the South had won the Civil War?" or "Design the structure of a futuristic city based on your beliefs of how the U.S. will evolve."

Why? Students self-judge ideas to try to get a good grade. Non-graded assignments enable students to take risks

Tip 59: Ask questions of the class which require synthesis of other aspects of thinking or divergent thinking.

How: Deliberate preparation of questions and exercises which require synthesized answers, rather than mere comprehension or factual recall, provides students practice in this skill.

Why? Bloom et al. (1956) proposed a taxonomy of cognitive learning objectives which includes a higher order objective categorized as synthesis. Defined as creating something new by combining different ideas, synthesis builds on previous knowledge while requiring original thinking for the combination process.

1E. Metacognitive Self-Regulation

Metacognition refers to thinking about one's own learning and thinking. Choosing an appropriate strategy for learning, monitoring whether one understands or is confused, and planning alternative approaches are examples of metacognitive self-regulating strategies.

Tip 60: Encourage students to set specific goals for themselves for each assignment or study period.

How: Students' attention should be directed to achieving certain outcomes (e.g., being able to conjugate a particular irregular French verb or finding five useful sources for a term paper in American history) rather than to the amount of time spent in studying.

Why? Students will learn the material better if they set specific, concrete goals for themselves rather than focusing on studying for a certain amount of time. Accomplishing a goal increases self-efficacy.

Tip 61: Teach students learning strategies.

How: When you make a reading assignment, talk about different methods of studying it.

Why? Few students have had the benefit of explicit instruction in the use of learning strategies. The specific techniques taught to students need to be adapted to the objectives, and the techniques should be selected based on the content of the course. Teach students elaboration and organizational techniques to aid recall, e.g., paraphrasing, summarizing, or grouping information into categories. After illustrating specific techniques, encourage them to devise their own.

Tip 62: How clear is this lesson?

How: After providing each student with a 3" x 5" index card, the instructor circulates an envelope on which the following question appears: "How clear is the content of the lesson at this precise moment in the classroom?" Students take a minute to record the time, write a response on the 3" x 5" index card, drop the card into the envelope, and pass the envelope on to the next student. For very large classes, more than one envelope may have to be in circulation. For additional information, refer to Cross and Angelo (1988), Technique 24, Chain Notes.

Why? If students are reminded to check their understanding in this way, they may become more likely to monitor their own understanding. In addition, responses from students can provide feedback to the teacher.

Tip 63: Encourage your students to monitor their reading.

How: One way for students to monitor their reading is by replacing the less effective "yup yup" method with the more effective "mutter scribble" method of reading. Passive readers sometimes limit themselves to simple "yups" as they complete each paragraph. Although they may think that they are understanding the material, they often have great difficulty recalling what they have just read. The "mutter scribble" method requires students to ask themselves questions about the paragraph they have just read and to scribble key points and summary information in the margins of the book or in a notebook. Although the "mutter scribble" method takes longer initially, students are more likely to remember what they have read, which saves them time when studying for a test.

A quicker, but slightly less effective, way for students to monitor their reading is by putting either a check mark or a question mark alongside each paragraph or section that they have just read. A check mark is used to indicate understanding, whereas a question mark is used to indicate confusion. Since confusion in one paragraph may be clarified by information in the next, students should read the subsequent paragraph before doing anything else. If the subsequent paragraph clarifies the initial confusion, the question mark should be changed to a check mark and the student should continue with the assignment. If the subsequent paragraph does not clarify the student's confusion, the student should reread the part not understood. An extra reading often helps. If the idea still remains unclear, the student should try to determine the cause of the problem and try to think of something to do (e.g., use the glossary, study the diagrams in the text, ask someone else, etc.) in order to understand the material.

Once the material is understood, the question mark should be changed to a check mark.

Why? Many students are passive readers who go through the motions without comprehending or remembering much of what they read. By monitoring their reading, students become more actively involved in the reading process.

Tip 64: Have the students describe the steps they used in solving a problem.

How: After demonstrating a problem-solving process, provide a situation that would be new to the students, and direct the students to write down the steps they use to solve the problem. For additional information, refer to Cross and Angelo (1988), Technique 5, Documented Problem-Set Solutions.

Why? This activity forces the students to think about the information processing they have used to reach a conclusion.

Tip 65: For each class session, require the students to keep a log of the main points they understood and the items and topics that were unclear to them.

How: Develop a specific set of guidelines for the students to use in maintaining their logs: course, date, type of session (e.g., lecture, demonstration, reading assignment, examination), main points learned, points that are unclear to me, questions I need to have answered before I can understand points that are unclear. For additional information, refer to Cross and Angelo (1988), Technique 22, Self-Diagnostic Learning Logs.

Why? This repeated feedback to the students can help them analyze and correct their learning problems, if the instructor collects the logs and provides suggestions to the learners.

Tip 66: Have the students describe the processes they are using to complete an assignment.

How: Ask the students to maintain a step-by-step record of the procedures they use in preparing for and completing an assignment. Demonstrate to the students how they might keep such records of their procedures. After reviewing the students' work, the instructor can provide feedback about how clear the students' learning procedures were; helpful suggestions can be provided to the learners. For additional information, refer to Cross and Angelo (1988), Technique 21, Process Self-Analysis.

Why? This activity gets students to think about the processes they are using when completing an assignment.

Tip 67: Have the students describe a specific learning experience they have had since they entered college.

How: Ask the students to write a one-page or two-page sketch of themselves as learners during one specific experience. For additional information, refer to Cross and Angelo (1988), Technique 17, Focused Autobiographical Sketches of Students as Learners.

Why? This forces students to look at themselves as learners; it helps the instructor to assess the students' perceptions of their success in learning.

2. Resource Management Scales

The Resource Management Scales deal with the students ability to manage time and use facilities needed for effective learning.

2A. Time and Study Management

Time and study management strategies refer to the ways students organize their use of time as well as their actual place for studying.

Tip 68: Help students develop their objectives for your course.

How: Distribute a syllabus that lists all course requirements with their due dates. Ask students to develop objectives for each course they are taking, and to work out a plan for meeting their deadlines for achieving their objectives.

Why? Research shows that it is possible to teach students to have greater self control of their studying (Watson and Tharp, 1985). First they must learn to establish goals for objectives that are specific, measurable, realistic, and have a scheduled target for achieving them.

Tip 69: Have students develop a plan for the whole term.

How: Have the students purchase a large wall calendar or draw one with individual day blocks large enough to write in more than one assignment or examination. Have them write in all deadlines for finals, term papers, midterms, etc. They will need to carefully analyze all syllabi. Then have them estimate, with reasonable numbers, how much time it will take to complete each project, and plot subsets for each. This will help impress upon the students that large projects must be broken down into smaller, more manageable units.

Why? A long-range schedule that incorporates all tasks and their deadlines from each course will help the student see the semester in perspective, will highlight critical due dates, and will provide a calendar for blocking in intermediate objectives (that is, the steps needed to achieve the longer range objectives).

Tip 70: Explore with students the difficulty and importance of managing their time.

How: For example, small groups can be assigned the task of listing impediments to managing their time and techniques they have used to overcome those impediments. Group discussion of the divergence and convergence of those ideas might follow.

Why? Research (McDaniel and Eison, 1987) reveals that the most common worry students report is "I worry that I have too much to do and not enough time to do it in." Letting them see this is a common problem may help reduce their anxiety and teach them how their peers cope with the problem.

Tip 71: Assess students' time management skills.

How: Administer the Problems in Time Survey (PITS), a 35-item, self-report questionnaire identifying seven somewhat different dimensions of time management (Eison and Holtschlag, 1989). This allows the instructor and student to identify specific time management difficulties, and provide effective problem-solving strategies to improve student skills using the survey results.

Why? Students can better learn how to manage their time by identifying the strengths and weaknesses in their time behaviors.

Tip 72: Show students how to analyze how they currently use their time.

How: Introduce the concept of a Time-Place-Task-Plan; that is, a chart the student completes that includes the exact amount of time spent for each study session, where completed, how much was done, and the times that could have been used but were not. Have the students keep track of study time for a week, then analyze the chart together. Have students determine when they work best on which subjects and use that information to plan the next week's work. Experiment with increasing the number of pages or problems in small increments. If one place for studying does not work out well, find another and see if that is better. Use this technique over several weeks, making minor adjustments that fit the prioritized objectives for each course. This could be augmented with in-class discussion, so students can compare their progress.

Why? There is no way to get where you want to go unless you know where you are starting from.

Tip 73: Emphasize the importance of students' developing additional time control techniques for each week and each day.

How: Tell the student to use a week's calendar blocked out by day and hour from 7 a.m. to midnight. Have the student enter class times and work times, since they can be determined in advance, and tell the student to schedule other activities around them. Then have him/her schedule times to eat, sleep, etc. Include time for errands, household duties, etc. Schedule time for relaxation, play, entertainment. Then schedule study hours, again realistically based on established course objectives. Allow some room for emergencies. Then have the students use the calendar, recording next to the activity planned, the actual time spent. Revising this calendar will help the student gain control over his or her study time management.

Why? The smaller the unit a student has to deal with, the more manageable it becomes. Projects seen at a distance (e.g., in a semester framework), often seem too complex, time consuming and overwhelming. Students tend to procrastinate in the face of such projects.

Tip 74: Have students keep track of time-on-target as they work on assigned tasks.

How: Suggest that students put a check in the margin each time they realize they have been daydreaming. Or, using the chapter subtitles, have them ask themselves questions about what they've been reading and see whether they can answer them easily.

Why? Research suggests that poorly performing students spend less time-on-target than do better students. All instructors have heard complaints like, "But I spent two hours last night reading that material." It is important to sensitize students to the fact that sometimes they are spending time, but not adequately concentrating.

Tip 75: Engage the learners in an activity that requires them to evaluate their use of academic learning time.

How: Select one assignment and ask the students to estimate how much time they will spend in actively learning the material and completing the assignment. Next, tell the students to note the actual time they are spending on the assignment by recording every ten minutes they spend in learning and working on the topic. For additional information, refer to Cross and Angelo (1988), Technique 19, Self-Studies of Engaged Learning Time.

Why? This type of activity encourages learners to discover how well they are using learning time so they can better control their time.

Tip 76: Discuss the benefits of regular attendance and having a good attitude toward attending.

Why? It is important to attend each class session whether lecture or discussion. The instructor's lectures are built one upon the other. If students miss any, they will be at a disadvantage in understanding the next. In a lecture, the instructor will indicate what is important (e.g., concepts to be mastered). The instructor will often indicate what students should be getting out of the next assigned reading. Concepts that are important to apply, synthesize, analyze, or evaluate will often be introduced in class. Such activities are designed to help students achieve the course objectives. If students miss them, they miss the meat of the course. Students should also know that regular attendance will allow them to be active learners. They can ask questions, get more information, clear up confusing concepts, and demonstrate their competence to the instructor. Sometimes assignments and due dates are changed during class time, important information that the student might otherwise miss.

Tip 77: Emphasize the role of the study environment. For example, when the student was not "on task," how often was this attributable to environmental distractions or to not having the needed material in the study environment.

How: Have students list assignments they plan to work on for a study session. For each task the student should list the estimated time to be spent and the amount of time that will actually be concentrated on the task, leaving spaces to record the actual time after completing the task. For additional information, see Cross and Angelo, Technique 19, Self-studies of Engaged Learning Time.

Why? Students often fail to gather systematic data which can influence future behavior. This tip can help students to become more reflective about the negative effects a poorly planned study environment can have on their studying.

Tip 78: Have students design the ideal study environment and compare their designs. Differentiate the settings for different kinds of learning. Where do you <u>think</u> best? <u>Write</u> best? <u>Read</u> best? etc.

Why? This task gives students practice in analyzing their study environment and identifying critical characteristics of that environment. Comparison of their environment with others can awaken the student to new aspects of a study environment. When students learn that others' studying outcomes are aided by such characteristics, they may be motivated to change their own study environment.

Tip 79: Discuss techniques to handle distractions that arise in the environment (wearing earphones and listening to appropriate music, creating a visual shield, learning to be assertive with family members and roommates, etc.).

Why? Many students do not have the experience which allows them to generate ways to change their study environment. If the teacher discusses some alternatives, students may discover characteristics that will increase their effective study time.

Tip 80: Explain how to organize a study area for maximum benefit.

How: Certainly the study area should be reasonably quiet and free from frequent interruptions--a place where friends are not allowed during study hours. It's sometimes useful to place a "Do Not Disturb" sign on the door so friends won't be tempted to interrupt. It is important to have all the materials necessary for study in the area (i.e., class notes, textbooks, supplemental readings, dictionary, pencils, pens, highlighters, etc.), so there is no need or temptation to wander off looking for something once he or she has begun to study. It is also advisable to have the schedule for the day, week, month and/or semester posted on the wall or some place convenient.

Why? Ideal conditions are not always possible, but students should be encouraged to experiment with a variety of strategies.

2B. Effort Management

Effort management refers to students' ability to control their attention and effort in the face of boring or difficult tasks.

Tip 81: Explore conditions that interfere with your students' study efforts and devise ways to cope with them.

How: Help students explore their own feelings by asking them to identify conditions that interfere with their study efforts. General discussion of various conditions permits students to see how their peers view those same conditions and may suggest a plan for coping with them, thereby removing some blocks to motivation.

Why? Some students assume conditions outside of their control affect their success in learning; others believe the locus of control is internal. According to research, students who accept responsibility for their learning (those with an internal locus of control), are likely to be more successful academically.

Tip 82: Teach students to set specific goals for their study effort.

Why? Motivation is affected by closeness to a goal. If one's goal is distant (passing the course) or unclear, motivation is lower. Achievement of a goal is satisfying and may strengthen motivation to achieve the next goal. If the task is particularly boring or unpleasant, the student might benefit from promising himself or herself a break or a switch to a more satisfying activity upon achievement of the goal.

Tip 83: Help students develop a repertoire of ways to avoid being distracted from study.

How: It's often useful to brainstorm how to handle "what if" problems with students. "If you become preoccupied, stop, write down the thought, and continue studying." If you have a problem that you simply can't put aside, stop and handle it, then return to your studying." "If you're depressed, take a walk, then come back and study." "If you simply must talk with a friend, do it and come right back to study." "If your mind is a fury of thoughts, meditate a minute or two to blank them out." "If you feel sleepy, study standing up for a time."

Why? Study habits are developed like other skills - by practice.

2C. Peer Learning

Peer learning refers to students' effective use of other students to help their learning.

Tip 84: Break a large class into pairs to discuss an issue or compare notes.

How: Ask students to write down a question (alternatively - an example or an application) based on the lecture or on the text. After a minute or two, say "Now turn to a person near you and compare the questions you raised, discussing why you raised them.

Why? Breaking up the lecture maintains attention and thinking of a question or example enhances student retention.

Tip 85: Form students into groups to carry out a project or to study for tests.

How: If students know one another, they may be able to form their own groups. Alternatively you may assign them to groups. Be sure to give them time to get phone numbers, set their first meeting time, and determine who will do what before the next meeting.

Why? The effectiveness of peer learning is supported by much research. It enhances motivation and encourages questioning and explanations that increase the likelihood of better learning and memory.

2D. Help-Seeking Behavior

Help-seeking refers to students effective use of resources when they need help.

Tip 86: Ask students to discuss why students do, or do not, seek help.

How: After students have had an opportunity to discuss this question, large group sharing might be done and student responses noted on the board. The faculty member might then encourage some critical thinking about the validity of the students' reasons for not seeking help when help is needed.

Why? Discussion tends to reduce some of the threats to self-esteem which keep many students from seeking help.

Tip 87: Model the acceptability of seeking assistance by describing strategies to students that faculty use in this regard.

How: Describe your research or scholarly activity and the role that colleagues play in generating ideas, critiquing drafts, or providing statistical analyses. Review the "Acknowledgment" section of their textbooks to see how authors seek assistance from reviewers, publishing companies or other family and friends. These activities allow students to see that asking for assistance is not contrary to learning, but is actually part of the academic enterprise.

Why? Students often believe that faculty function totally alone, since that is usually how the student interacts with his or her single instructor.

Tip 88: Encourage students to analyze areas in which they might need assistance.

How: Invite students who are having difficulty to meet with you to review study skills or time management and then refer them to appropriate assistance. In other words, set up the mechanism through which students can admit that they need help and be rewarded for the admissions by learning that resources are available.

Why? Students may not realize that they lack skills to achieve their goals, but instead assume that their difficulty is a result of some inherent lack of intelligence. Aiding them in recognizing the skills necessary to be successful and informing them of locations on campus or in the community through which to develop successful skills, allows them to see areas in which they may need assistance.

Tip 89: Be explicit in inviting requests for help from students.

How: An explicit invitation written on a returned assignment or quiz can signal the acceptability of seeking assistance with this particular course. "Would you like the opportunity to discuss the study skills you used for this material? Maybe we can identify some more successful techniques. Why don't you come by my office?" allows the student to be less self-critical of himself and more analytical of his strategies.

Why? Faculty inevitably set the tone for the potential to receive assistance. While one might assume that students will know to actively seek help, many students will not have had any prior experience with this activity. In some cultures, seeking assistance may convey a lack of ability or be particularly threatening to students.

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